SAFETY INSTRUCTIONS AND OPERATORS MANUAL FOR BEVELING MACHINE PBM-2000

Please record your equipment identification information below for future reference. This information can be found on your machine nameplate.

Model Number _____

Serial Number _____

Date of Purchase _____

Whenever you request replacement parts or information on this equipment, always supply the information you have recorded above.

BUG-O SYSTEMS

A DIVISION OF WELD TOOLING CORPORATION

CE

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LIT-PBM-IPM-O404

The bevelling machine is designed for milling steel edges prior to welding. It is reliable and simple to use. The machine can be used for bevelling straight and curved steel sheets and pipes. It allows you to bevel steel edges between 30 and 60 degrees. maximal width of cut is 18 mm. When equipped with special attachment it can also work on pipes above 150 mm diameter.

Before you start work with the machine, please read these instructions carefully. Take special note of safety recommendations.

Power supply: 110 V AC 50÷60 Hz

Motor: electric, single phase, induction, with work capacitor.

Power: 1,1 kW

Speed: 2820 min^{-1}

Maximal instantaneous overload: (18 A)

Cut of point: (22 A)

Electric safeguard: neutral earthing

Tool: double milling head with multi-blade inserts

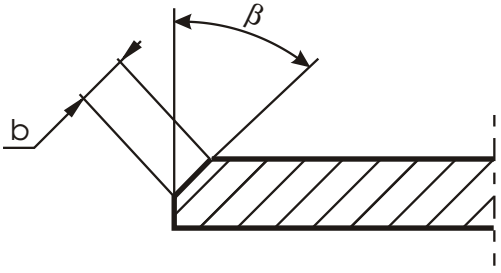
Cutting speed: around 550 m/min

Max. width of cut: b=18mm for 45˚ angle (see drawing 1)

Range of angles: $30^\circ < \beta < 60^\circ$ (drawing 1)

Total weight: around 19,5 kg

Fuse: 2 A



- metal box
- bevelling machine with a set of inserts
- curves and pipes attachment (part 309÷315) - option
- tool box (part 601)
- 2 Allen wrenches:
  hex s3 (part 605)
  hex s6 (part 602)
- milling head fastening tool (part 604)
- milling head interlock (part 606)
- milling head puller (part 607)
- instructions

The PBM-2000 comes in a ready-to-use state. The only operation that needs to be carried out is adjusting it to workpiece thickness and the bevelling angle. Precise instructions how to do it are given below in point 5.

Plug machine into mains. Both the plug and the socket must be earthed. Lift the machine and place it vertically on its horizontal slide, on the edge of your workpiece, which should be on your right hand side. Make sure that the tool does not touch the workpiece. You can now turn the machine on by pressing main switch (507) to position "I". To switch machine off press switch (507) to position "O". You can now start the motor pressing switch (510, button "I") what will be signalled with an amber light coming on (506). To stop the motor press switch (510) again (button "O").

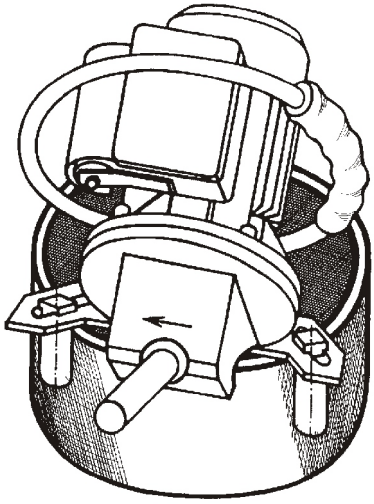
Start sliding the machine slowly to the right, untill such a moment that the tool starts to cut steel but remember - the direction of feed is marked on the spindle housing (205). The feed rate depends on the thickness of steel which is being bevelled and on the composition of that steel. Most steels can be bevelled with just one pass.

If the operator attempts to mill too fast and too thick, the overload red indicator (504) will start flashing and if motor is loaded even harder power will be cut off. To start the machine again move the tool away from bevelled edge, than press button "O" switch (510), and after few seconds you can start the machine again by pressing button "I" (switch 510)

Operator is permitted to use the machine at the brink of the cut-off point with overload light coming on and off, but the temperature of the motor should not exceed 85˚C. Higher temperature can permanently demage rotor. This unit is designed to work under full load for around 1 hour, after which it should cool down for about 15 minutes. The motor will not cool down running free, but it will get even warmer.

Special optional roller attachment (309÷315) allows you to bevel pipes and curves.

1. To prepare the machine for work on pipes take the 307 slide off the machine and replace it with the pipe attachment (309÷315).
2. Move the housing (205) to its "zero width of cut" position ie. when beveling angle is null.
3. Place machine on the edge of pipe, in such a way that the milling tool touches the workpiece (drawing 2). Then loosen bolts (309) and move rollers (311) symmetrically towards the pipe so that they rest on it. fasten both rollers. You can now adjust required bevelling angle.



Pay special attention to the following points:

- Power supply should be in accordance with all local regulations. Its capacity to earth electrical loads should be tested prior to work.
- Power supply cable should be protected from demage.
- Precise and tight fitting of the milling head and its inserts.
- Corect adjustment of the milling head to the workpiece and tighten bolts.

Always wear protective glasses!
Inspect the condition of milling inserts regularly and change them when worn!
Stop machine, if any abnormal signs occur!
Always unplug machine from power supply during any work on the tool, when adjusting angles or any other work on it.
All repairs should be carried out by authorised sevice only.

There are two adjustments mechanisms:
1. for adjusting the bevelling angle required,
2. for adjusting the machine to the thickness of steel which is being cut.

Before you start any adjustments make sure that the machine is unpluged from the mains.

To change bevelling angle loosen two M8 bolts (302) located on both sides of the milling head housing and interlocking vertical and horizontal slides. Then change position of two slides setting the required angle according the pitch marked on the side of the housing. After setting the right angle tighten all 302 bolts.

The width of cut can be set by turning bolt 202 which will after the position of the milling head. Do it by loosening two bolts 212 located on the side walls of the housing and turning the bolt 202. Then tighten 212 bolts. The pitch shown on the side of 205 housing gives only approximate parameters. Precise bevelling width should be adjusted empirically by appropriate adjustment of the housing

The machine is equipped with a double milling head, containing twelve cermetalic inserts. Recommended inserts are of the following type: ISO SEKN 1203 08 CERMET.

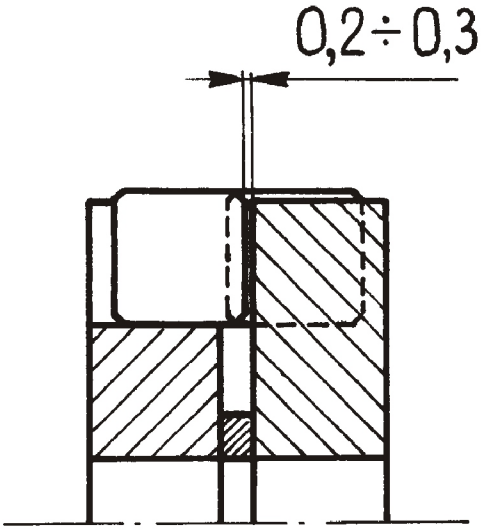
I case of average quality construction steel, life expectancy of those inserts is around 150 running meters per each side of inserts. before you replace tips for new ones make sure that all four sides of each insert were used. Take the housing 205 off the machine. To do it, undo bolts 212, using Allen wrench - size 3 (supplied as standard). It is normally not necessary to take both milling heads 403 off the spindle 401. Using Allen wrench s3 (605) undo screws 407 and remove inserts.

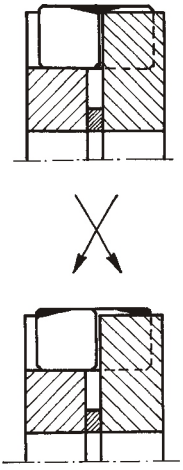
When changing tips make sure that all inserts newly placed in the milling head are installed square and that are pushed as far back (into the holder) as possible. Before pushing new inserts into the milling head always remove all swarf. drawing No 3 shows how inserts should overlap each other. Make sure

that the necessary gap of 0,2 mm is always made.

If both milling heads were removedand the replaced on the main shaft make sure that they are installed in the right direction and that tips of each milling head are shifted relatively to each other for smoother work.

If the width of cut is small then swap all inserts according to drawing No4, thus extending their life even longer.





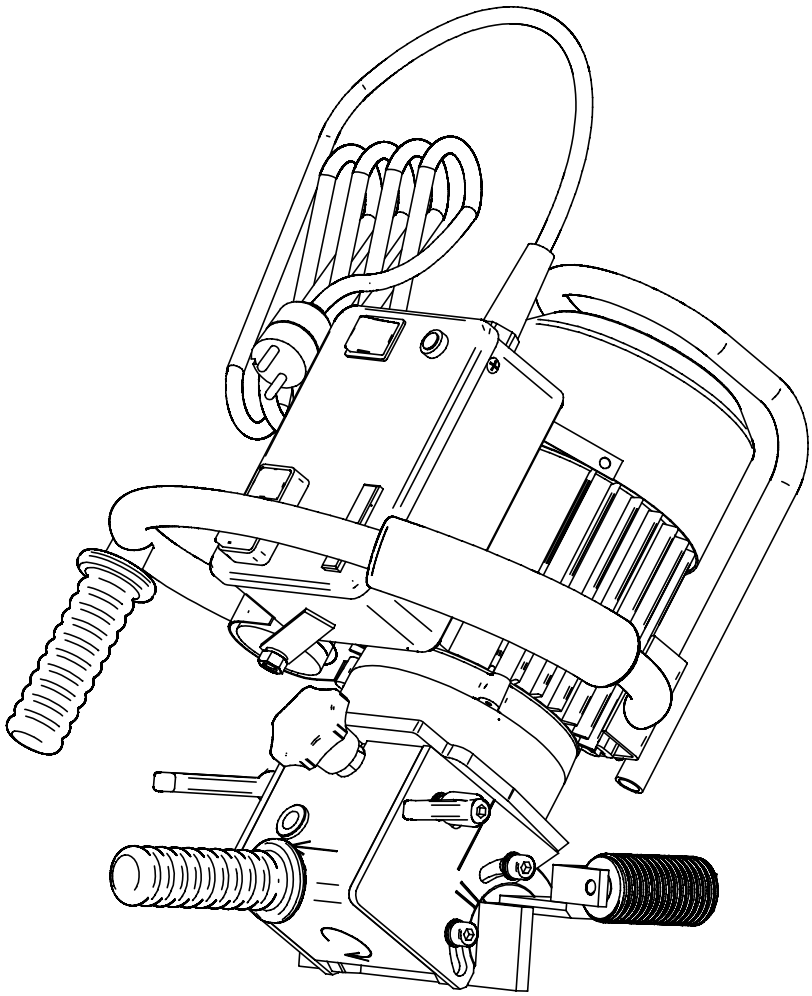
PARTS LISTS AND EXPLOSION DRAWINGS FOR PBM-2000 PLATE BEVELLING MACHINE - 120V

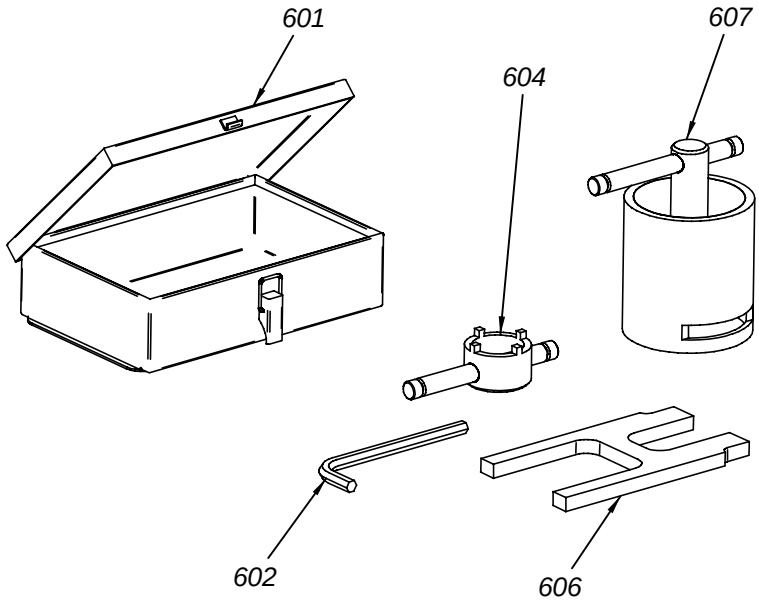
	DESCRIPTION	PART NUMBER	QTY.
105	Electric motor	H01111-002-01-00	1
109	Holder (set)	C02180-751-09-01	1
110	Cushion washer 6,1	N18200-806-01-01	4
111	Hex. socket bolt M6x16	N18230-206-16-01	4
113	Nut M6	N18214-406-00-01	5
202	Feed bolt	C02180-592-02-10	1
205	Spindle Housing	C02180-752-50-00	1
208	Stop pin	C02180-752-58-00	1
210	Round washer 8.4	N18200-608-04-01	2
211	Cushion washer 8.2	N18200-808-02-01	2
212	Handle	H00643-483-01-00	2
301a	Hex. socket bolt M5x10	N18230-205-10-11	10
301b	Hex. socket bolt M5x8	N18230-205-08-11	2
302	Hex. socket bolt M8x20	N18230-208-20-11	4
303	Guide slide I	C02180-593-03-00	1
304	Cushion washer 8.2	N18200-808-02-01	4
305	Round washer 8.4	N18200-608-04-01	4
306	Slides mounting I	C02180-753-06-00	1
308	Slides mounting II	C02180-753-08-00	1
351	Guide slide II	C02180-753-07-01	1
352	Roller set	C02180-753-07-30	2
401	Milling head arbor	C02180-594-01-00	1
402	Motor key 6x6x32	C02180-754-02-00	1
403	Milling head (Insert holders)	PBM-2041	2
404	Milling head key 6x6x31	PBM-2042	1
405	Distance ring	C02180-594-05-00	1
406	Milling insert	PBM-2051	12
407	Insert screw M6x0,75x6	PBM-2052	12
408	Safety washer MB-4	PBM-2043	1
409	Bearing nut KM-4	PBM-2044	1
410	Hex. socket bolt M-6x30	N18230-206-30-02	1
411	Washer	C02180-594-11-00	1
412	Cushion washer 6,1	N18200-806-01-00	1
501	Electronic module 110V	C02180-595-01-01	1
503	Seal l=520	C02180-595-03-00	1
504	Red light indicator	H00917-421-01-00	1
505	Screw M4x12	N18221-204-12-01	4
506	Amber light indicator	H00917-421-02-00	1
507	Main switch	H01156-460-01-00	1
508	Cover (upper)	C02180-755-08-00	1
509	Fuse socket (incl. 2A fuse)	H01156-114-01-03	1
510	Motor ON/OFF switch set	H01115-166-01-00	1
511	Rubber bushing LA10	H01370-002-01-10	1
512	Strain relief nut	H01131-133-03-02	1
513	Power cord	H01126-477-01-00	1
514	Capacitor	H01111-002-01-01	1
515	"O" ring	H01370-020-01-00	2

516	Screw M4x12	N18220-104-12-00	2
517	Spring washer 4.3	N18202-404-03-01	2
519	Controller cover	C02180-755-19-00	1
520	Spring washer 8.4	N18202-408-04-00	1
521	Nut M8	N18214-408-00-00	1
522	Seal L=120	C02180-595-22-00	1
523	Internal insulation	C02180-755-23-00	1
524	Cover insulation	C02180-755-24-00	1
528	Motor ON/OFF switch nut	H01115-166-01-03	1
529	Strain relief	H01131-133-02-02	1
	Equipment (standard):		
601	Tool box	C02180-596-01-00	1
602	Hex. wrench s=6	H00643-507-01-00	1
604	Safety washer tool	C02180-596-04-00	1
606	Pusher	C02180-596-06-00	1
607	Puller	C02180-596-07-00	1
701	Metal box	C02180-597-01-00	1
703	Carton box	C02180-597-03-00	1

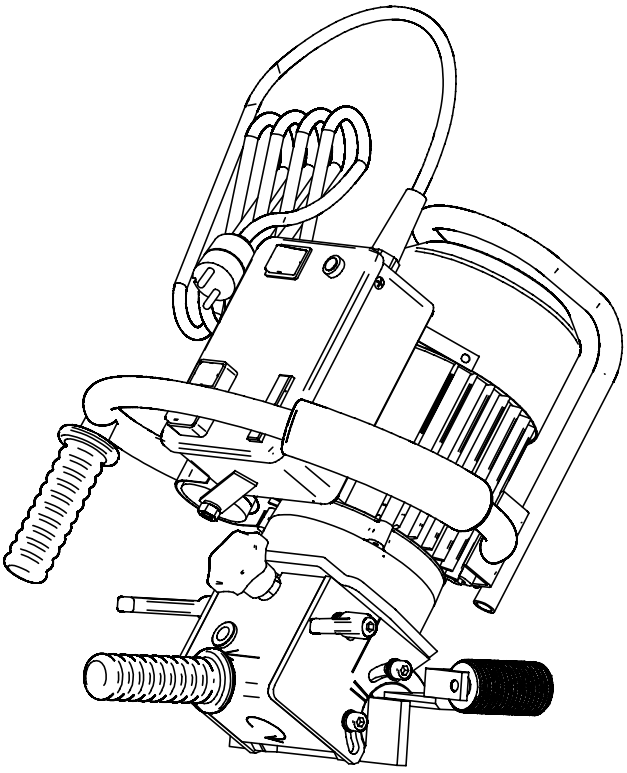
	Optional equipment: Pipe Attachment Set	PBM-2100	
1	Guide slide III	C02180-753-14-00	1
2	Cube	C02180-593-15-00	2
3	Round washer 8.4	N18200-608-04-02	4
4	Roller	C02180-593-12-00	2
5	Sleeve	C02180-593-11-00	2
6	Hex. socket bolt M8x70	N18230-208-70-02	2
7	Hex. wrench s=4	H00643-504-01-00	1
	Optional equipment: Angle Bevelling Set 15 - 45°	W02200-059-00-02	
1	Sliders mounting I	C02180-593-06-00	1
2	Sliders mounting II	C02180-593-08-00	1
3	Guide slide I	C02180-593-03-00	1
4	Guide slide II	C02180-753-07-01	1
5	Roller set	C02180-753-07-30	2
6	Spindle Housing 15 -45 deg	C02180-592-50-00	1
7	Hex. socket bolt M5x10	N18230-205-10-00	10
8	Hex. socket bolt M5x8	N18230-205-08-00	2
9	Hex. socket bolt M8x20	N18230-208-20-11	4
10	Cushion washer 8.2	N18200-808-02-01	4
11	Round washer 8.4	N18200-608-04-01	4
	Optional equipment: Angle Bevelling Set 0°	W02200-059-00-01	
1	Sliders mounting I	C02180-753-06-01	1
2	Sliders mounting II	C02180-753-08-01	1
3	Guide slide I	C02180-753-23-00	1
4	Guide slide II	C02180-753-07-01	1
5	Roller set	C02180-753-07-30	2
7	Hex. socket bolt M5x10	N18230-205-10-12	10
8	Hex. socket bolt M5x8	N18230-205-08-02	2

Bevelling Machine PBM-2000
Standard Equipment

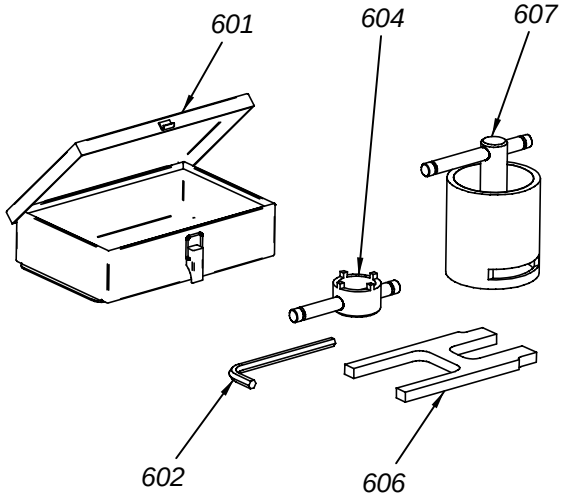




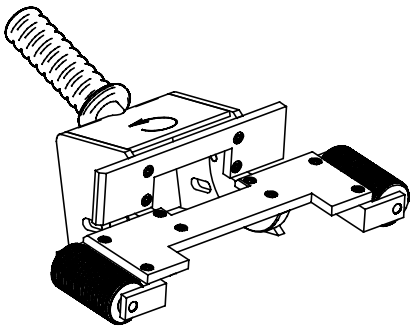
Bevelling Machine PBM-2000



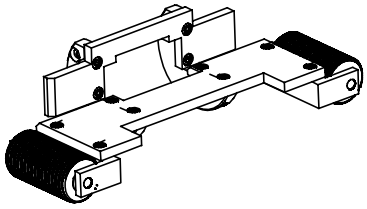
Standard Equipment



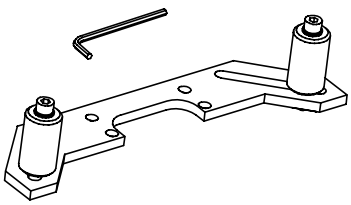
Optional Equipment



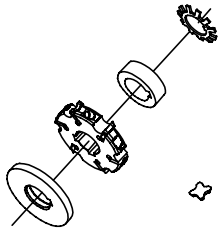
Angle Bevelling Set 15° - 45°



Angle Bevelling Set 0°

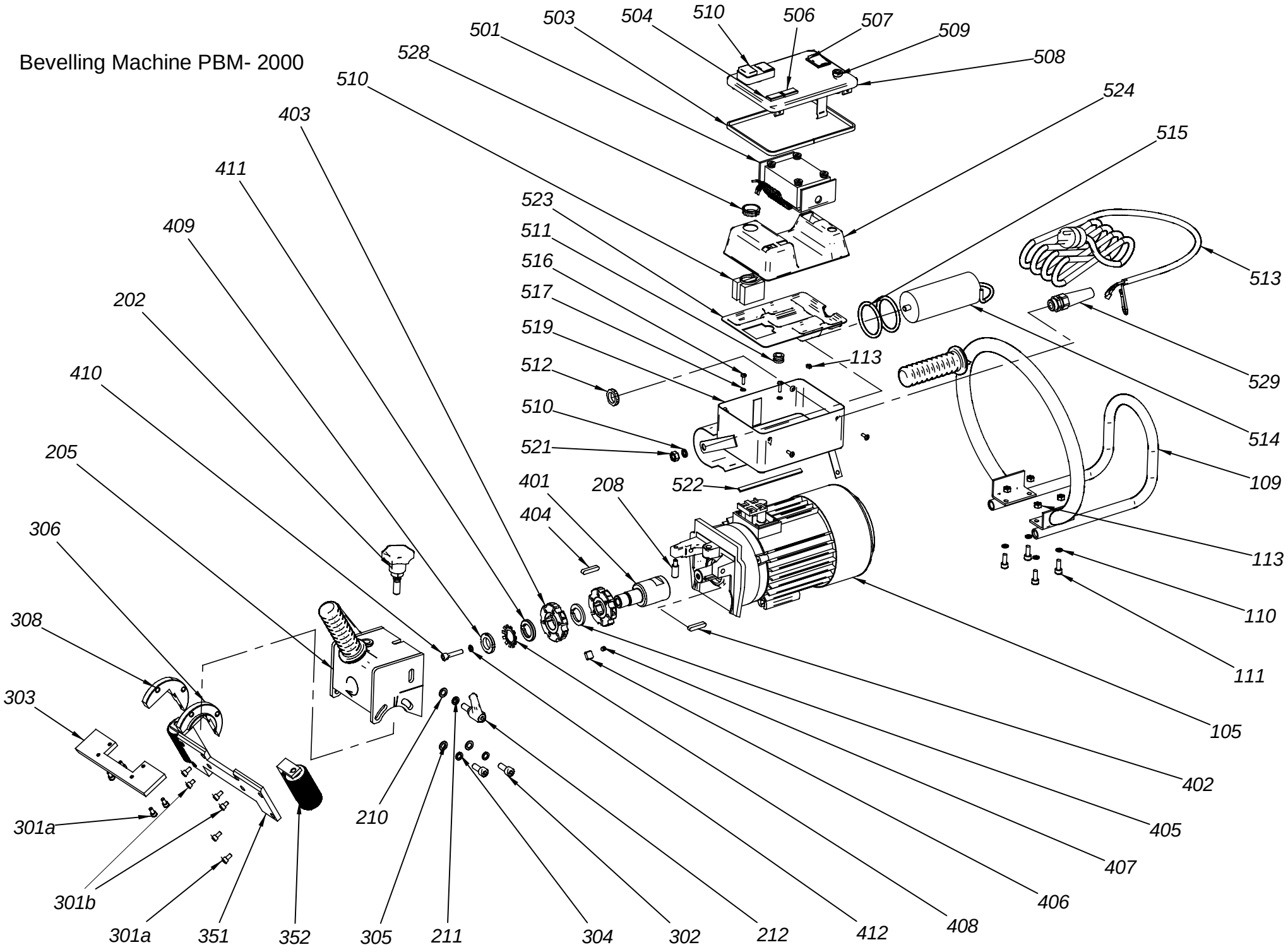


Pipe Attachment Set

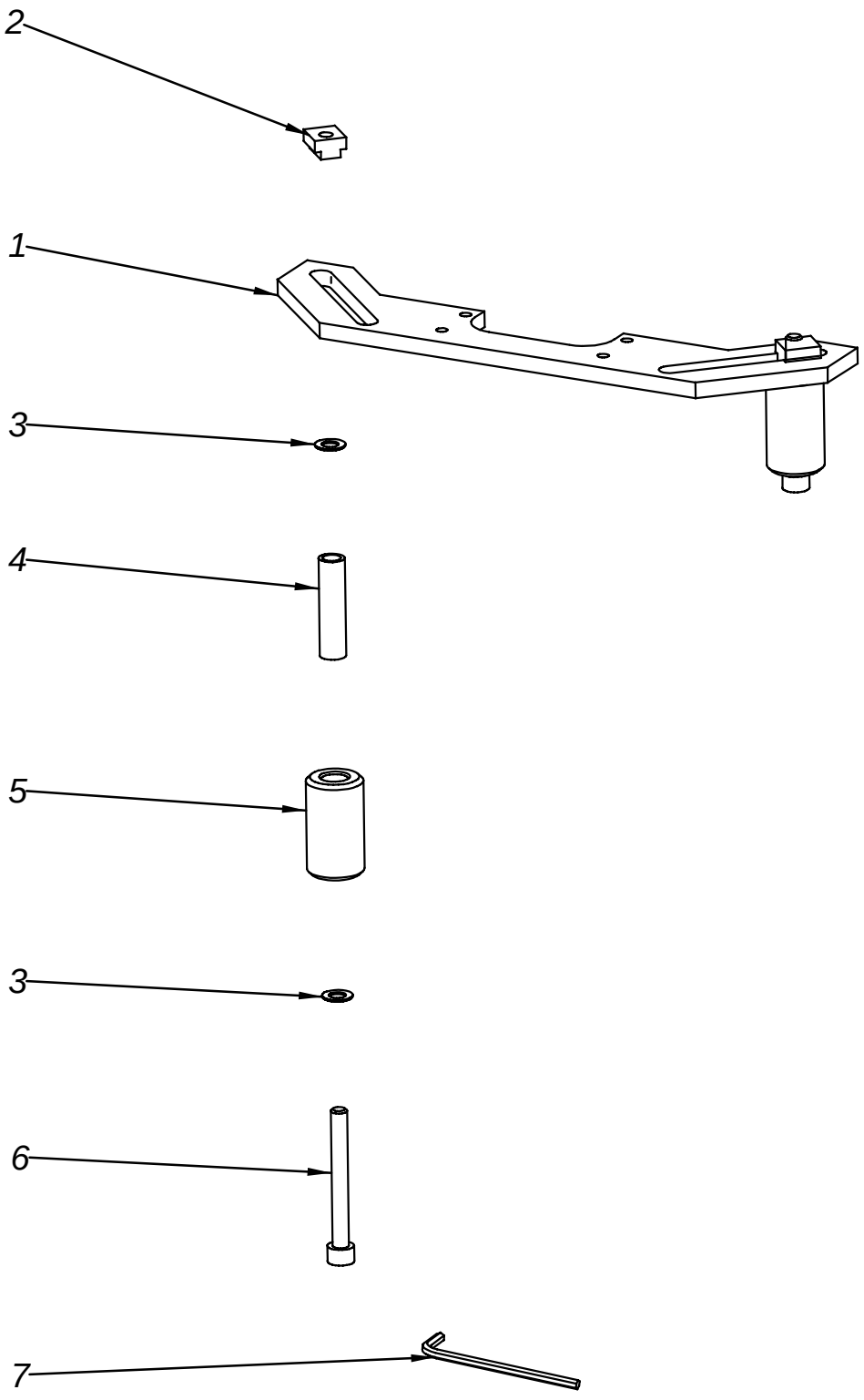


Milling Head Set R3

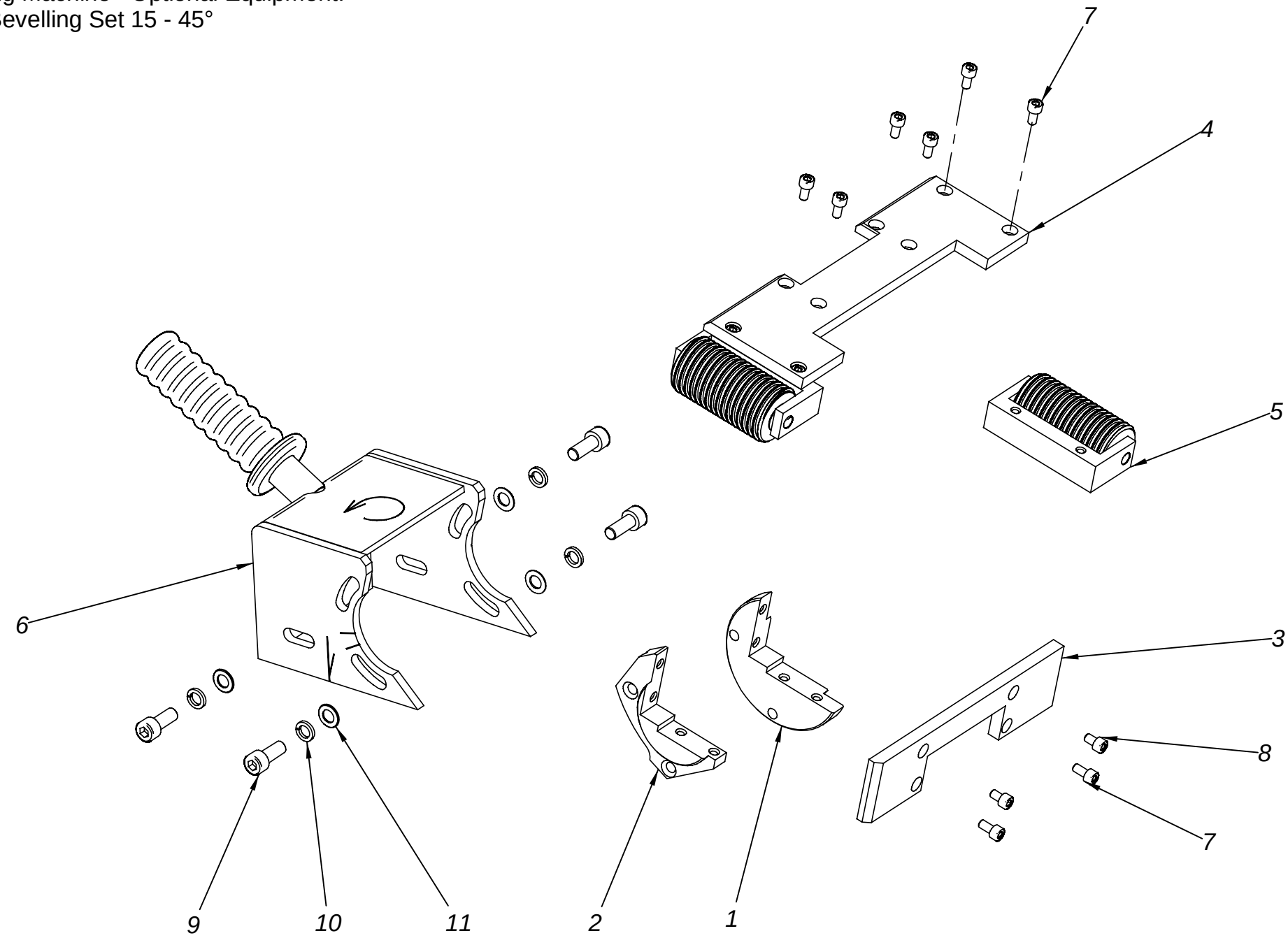
Bevelling Machine PBM- 2000



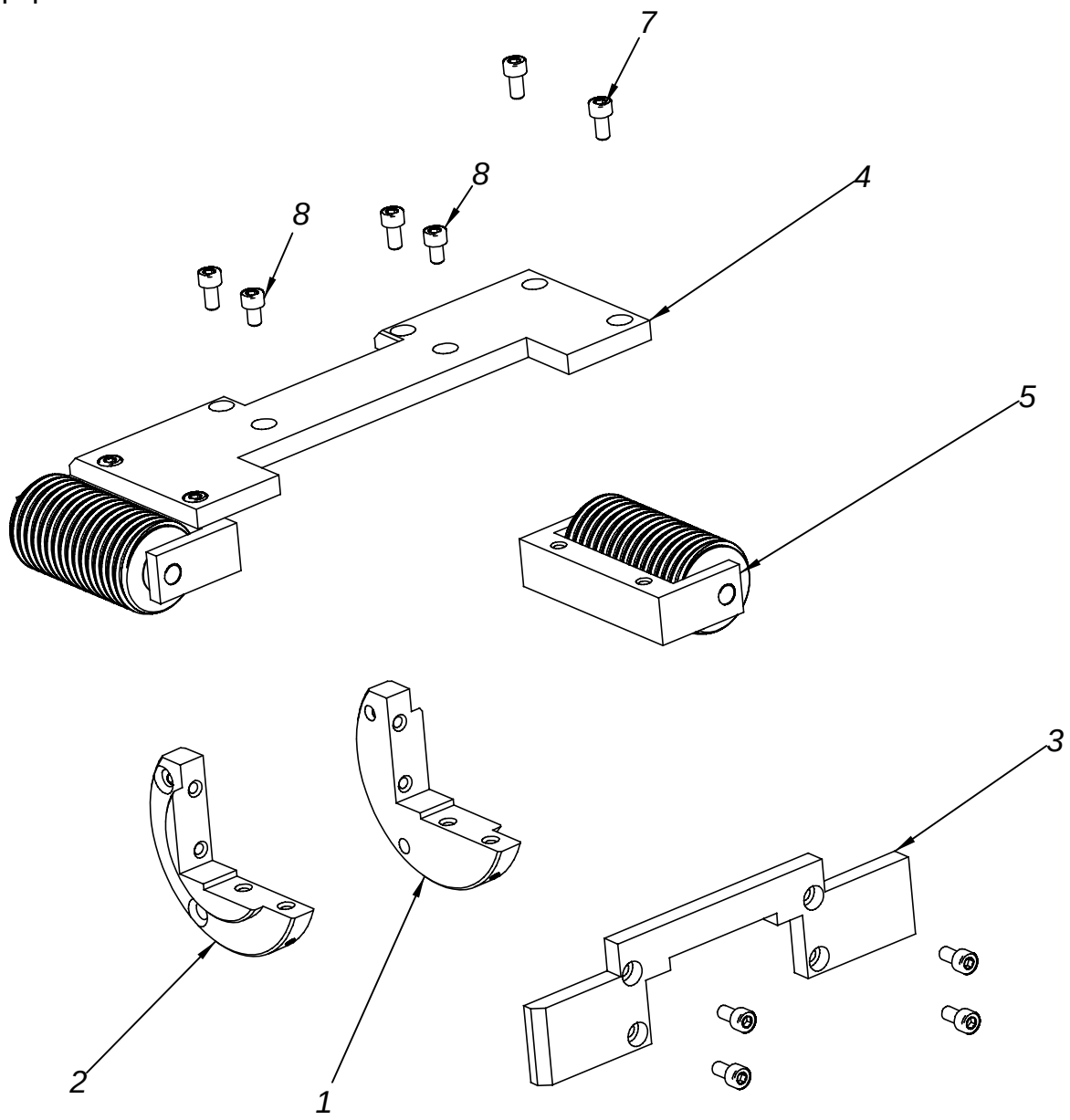
Pipe Attachment Set



Bevelling Machine - Optional Equipment:
Angle Bevelling Set 15 - 45°



Bevelling Machine - Optional Equipment:
Angle Bevelling Set 0°



PBM-2000 - WIRING DIAGRAM